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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,121	12/02/2003	Stefan Assmann	P03,0470	3560

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SCHIFF HARDIN, LLP
PATENT DEPARTMENT
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EXAMINER

SOLANKI, PARIKHA

ART UNIT	PAPER NUMBER
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3737

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/726,121	Applicant(s) ASSMANN, STEFAN	
	Examiner Parikha Solanki	Art Unit 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 9-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 May 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Response to Arguments***

1. Applicant's arguments filed 12 February 2007 have been fully considered but they are not persuasive. Specifically, Applicant's arguments stating that the claims, in their currently amended form, are sufficient to overcome the DeMeester (US Patent No. 6,922,580) reference are insufficient to render the claims in condition for allowance. Among other allegations, Applicant contends that DeMeester ('580) fails to provide means and steps for displaying a speed-resolved image of a tissue area. Examiner maintains that this limitation is indeed inherently present in the method and system of DeMeester ('580). As previously presented, the DeMeester ('580) reference provides means and steps for MR imaging, which would not be practical and useful without the step of displaying the recorded image data. Therefore, the step of displaying the speed-resolved image is considered to be inherently disclosed in the reference invention. Examiner presents modified grounds of rejection below, as necessitated by Applicant's amendments.

Drawings

2. The drawings are objected to because they are informal. Examiner recommends that Applicant replace handwritten, informal figures with formal, typed drawings. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 5, and 9-12 are rejected under 35 U.S.C. 102(e) as being anticipated by DeMeester et al (US Patent No. 6,922,580), hereinafter DeMeester ('580).

Regarding claims 1, 2, 9, 11 and 12, DeMeester ('580) discloses a system and method for automatically determining a speed of a manually-selected region with flowing medium in an MR imaging flow measurement, including acquiring an overview image and performing a navigator echo measurement, equivalent to the scout flow measurement claimed in the instant application (Abstract, col. 4 lines 11-17, col. 3 line 24 – col. 4 line 10, Fig. 1). DeMeester ('580) also provides the steps of constructing a cardiac cycle plot based on the navigator sequence data, which includes the peak speed of the flowing medium in the selected tissue area (Fig. 2), automatically performing an optimized flow measurement dependent upon the data in the cardiac cycle plot, and subsequently displaying a speed-resolved image of the selected tissue (col. 4 lines 44 – 62, col. 5 lines 21-26). Furthermore, DeMeester ('580) provides explicit steps for generating a plot indicative of blood flow, and subsequently gating an imaging sequence based on that plot (Fig. 2, col. 6 lines 35-39). Although DeMeester ('580) does not expressly recite steps for displaying the gated image, the step of displaying an image must be inherently present in an imaging sequence in order for the sequence to be practical and useful, and therefore, this limitation is considered to be implicitly disclosed by DeMeester ('580). Additionally, the step of "generating," as used by DeMeester ('580) (co. 6 line 35) also constitutes "displaying" as claimed in the instant application. DeMeester ('580) discloses that the imaging may be flow gated based on a flow rate threshold value or fixed imaging time window, which includes the average speed claimed in the instant application (col. 4 line 64 – col. 5 line 2).

Regarding claim 5, DeMeester ('580) discloses that the imaging is triggered by phases of the cardiac cycle (col. 2 lines 66-67).

Regarding claim 10, DeMeester ('580) states that the selected region for imaging may be three-dimensional, which requires that the data be acquired in slices, equivalent to the plurality of tissue areas claimed in the instant application (col. 4 lines 26-30).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3, 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeMeester et al (US Patent No. 6,922,580), in view of the image processing methods known in the art at the time of invention. DeMeester ('580) discloses all features of the present invention as described above, with the exception of adding a safety margin, setting the safety margin at 10%, and acquiring 20 images per motion cycle.

Regarding claim 3, in the art of signal processing, the methods of choosing a sampling rate at or above the rate of the signal of interest are commonly known and used to avoid undersampling the signal of interest, equivalent to adding a safety margin as disclosed in the instant application. DeMeester ('580) also teaches that the diagnostician may set the sampling rate truncation threshold based on the flow rate in the desired imaging region (col. 4 lines 62-68). Therefore, it would have been obvious to one of ordinary skill in the art to perform the method of DeMeester ('580), further including the step of setting sampling rate higher than the peak flow rate in the desired imaging region so as to ensure the acquired flow data is accurately sampled, in view of the state of the art signal processing techniques known at the time of invention.

Regarding claim 4, Applicant does not disclose an advantage of setting the safety margin at exactly 10%. As described for claim 3, it is known in the art that the sampling rate should be set higher than the signal of interest to avoid undersampling. At the time of invention, it would have been an obvious matter of design choice to one of ordinary skill in the art to perform the modified method of DeMeester ('580) set forth above for claim 3, further including the step of setting the safety margin at 10% so as to avoid undersampling the flow data in the desired imaging region (see for further motivation DeMeester ('580), col. 3 lines 3-4).

Art Unit: 3737

Regarding claim 6, Applicant does not disclose an advantage or reason for acquiring exactly 20 images per motion cycle. It is known in the art of cardiac MR that, during imaging, a sufficient number of images must be acquired in order to collect a set of image data that comprehensively represents blood flow through the selected imaging region. At the time of invention, it would have been an obvious matter of design choice to one of ordinary skill in the art to perform the method of DeMeester ('580) by acquiring 20 images per cardiac cycle, in order to generate a sufficiently comprehensive image of blood flow in the selected imaging region.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parikha Solanki whose telephone number is 571.272.3248. The examiner can normally be reached on M-F, 8 - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571.272.4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3737

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Parikha Solanki

Examiner – Art Unit 3737



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